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Links to Other eCatalog Sections

Rosemount Pressure Products

Rosemount Temperature Products

Rosemount Level Products

Rosemount Flow Products

Smart Wireless

Emerson's Smart Wireless solutions are an extension of the PlantWeb® digital plant architecture, combining highly reliable, smart monitoring devices with wireless transmitters in an innovative self-organizing mesh network that automatically adapts as devices are added or removed, or obstructions encountered. These products are suitable for a variety of applications, including: Process Monitoring, Health, Safety & Environmental or Asset Monitoring, and many more.

Reliable

Emerson's Smart Wireless products consistently deliver greater than 99% data reliability in real world customer installations. Rosemount wireless products, part of Emerson's Smart Wireless solutions, are built on the same proven measurement platforms as our wired devices. By selecting a highly reliable wireless architecture, coupled with our best-in-class measurement technologies, you can ensure that the best information about your process is delivered to the right people, every time.

Economics

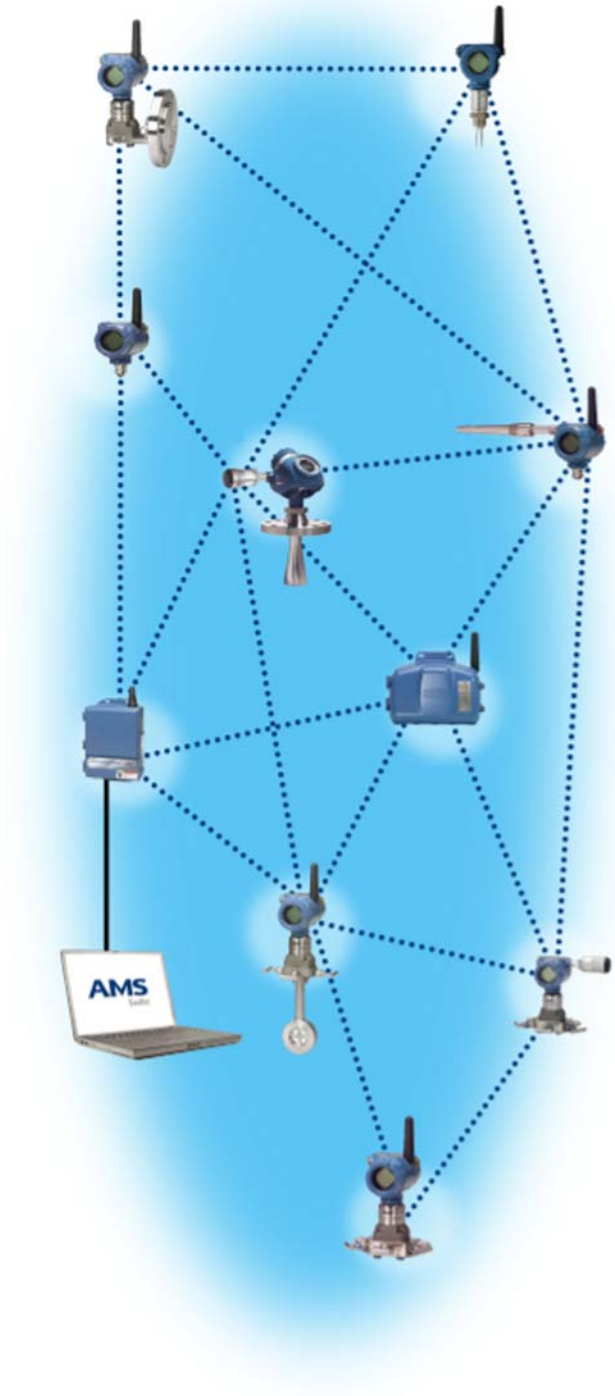
One of the greatest barriers to adopting new technologies or adding new points of measurement is sheer cost. Because there are no costly wires, cable trays, I/O or other infrastructure to design, procure, and install, customers who have selected Smart Wireless products have seen up to 90% installation cost savings over wired instrumentation alternatives.

Easy to Use

Rosemount wireless products are based on open protocols and can be installed exactly the same way as our wired devices so that special tools and additional training are not required. This enables you to quickly get access to important data and solve problems in your plant without the need for additional resources.

Expanding Opportunities

Our wireless architecture allows you to start anywhere and add more applications when you're ready. To learn about the newest additions to the Smart Wireless family and how you can start getting the benefits right away, visit www.emersonprocess.com/smartwireless.



Smart Wireless Gateway

- *Gateway connects WirelessHART™ self-organizing networks with any host system*
- *Easy configuration and management of self-organizing networks*
- *Easy integration into control systems and data applications through serial and Ethernet connections*
- *Seamless integration into AMS® Device Manager and DeltaV™ automation system*
- *Greater than 99% reliability with industry proven security*
- *WirelessHART capabilities extends the full benefit of PlantWeb® architecture to previously inaccessible locations*

WirelessHART

Contents

Success With Smart Wireless

Self-Organizing Networks

With reliability and ease of use, self-organizing networks are perfect in any environment. Multiple communication paths and automatic configuration result in over 99% reliability and allows you to deploy your instrumentation without a site survey, saving you time and money.

Open Integration

With a variety of options, the Smart Wireless Gateway gives you the freedom to choose the Smart Wireless Solutions best suited for your installation:

Flexible: Using OPC or Modbus TCP allows flexible integration of your wireless network with any host system.

Serial: The Smart Wireless Gateway supports Modbus RTU for integration into legacy host systems.

PlantWeb: The Smart Wireless Gateway natively integrates into any PlantWeb architecture for ease of use in commissioning your wireless network.

Stand Alone: Every Gateway comes with a web interface that provides a stand alone host interface to manage your wireless network, without a dedicated host system.

Layered Security Keeps Your Network Safe

Emerson Process Management's layered approach to wireless network security ensures that your network stays protected. The network devices implement Encryption, Authentication, Verification, Anti-Jamming and Key Management methods to ensure that data transmissions are secure.

AMS Wireless Configurator

AMS Wireless Configurator uses the power of Enhanced EDDL to assist in the setup and configuration of your Smart Wireless Field Devices and is shipped with every Smart Wireless Gateway.

Powers PlantWeb

The Smart Wireless Gateway powers PlantWeb architecture by giving you access to intelligent devices using WirelessHART technology and seamlessly integrating them into AMS™ Suite software and the DeltaV™ or Ovation™ systems.

Rugged Housing

The Smart Wireless Gateway is suitable for field mounting in any Zone 2/Division 2, general purpose area and is NEMA 4x/IP65 rated. So, the Gateway can be mounted directly in the process environment.

SMART WIRELESS SOLUTIONS

Smart Wireless Field Devices

Emerson Process Management has a family of Smart Wireless products to integrate different measurement types into a self-organized network that optimizes plant performance and reduces risk to personnel. The different measurement types offered include pressure, temperature, discrete, position monitoring, pH, and vibration.

Smart Wireless THUM™ Adapter

The Smart Wireless THUM Adapter incorporates data from any wired HART® device into the self-organizing network, enhancing plant performance and extending asset life.

AMS® Wireless SNAP-ON™

The AMS Wireless SNAP-ON application helps to plan and validate your wireless network using best practices. It allows for viewing of communication details graphically in real time, and helps maintain the health of your entire self-organizing network.

WirelessHART... The Industry Standard

Self-Organizing, Adaptive Mesh Routing

- No wireless expertise required, network automatically find the best communication paths
- Network continuously monitors paths for degradation and repairs itself
- Adaptive behavior provides reliable, hands-off operation and simplifies network deployments, expansion and reconfiguration
- Supports both star and mesh topologies

Industry Standard Radio with Channel Hopping

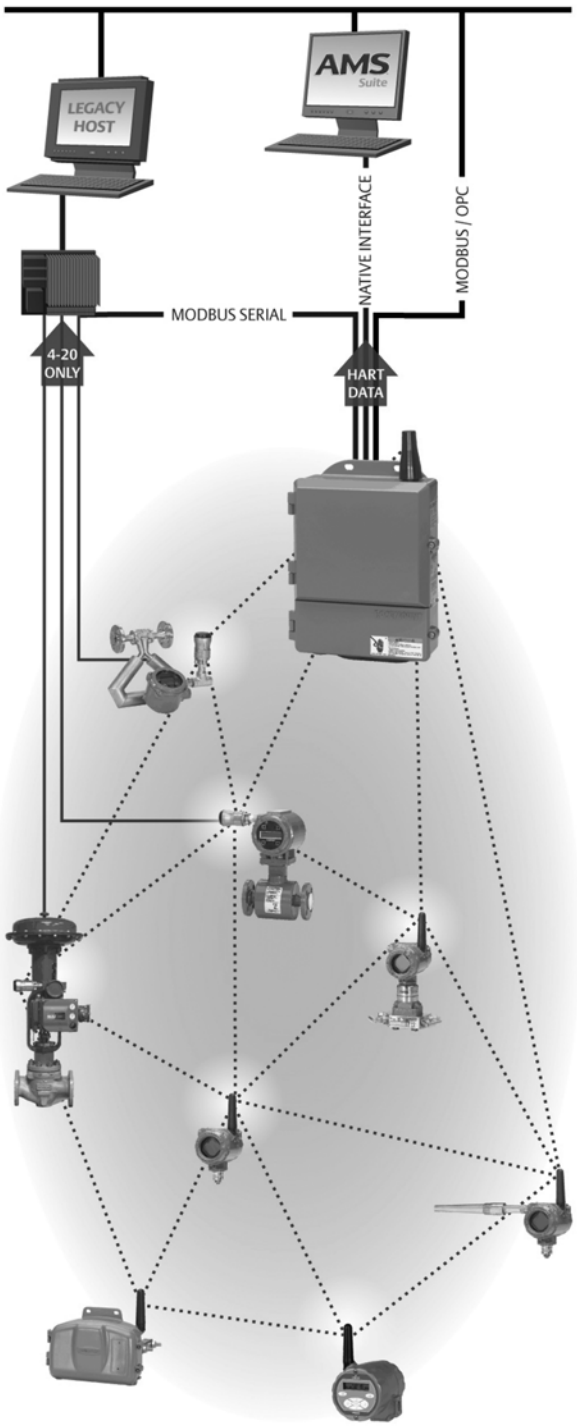
- Standard IEEE 802.15.4 radios
- 2.4 GHz ISM band sliced into 16 radio-channels
- Time Synchronized Channel Hopping to avoid interference and increase reliability
- Direct sequence spread spectrum (DSSS) technology delivers high reliability in challenging radio environment

Self-Healing Network

- The self-organizing, self-healing network manages multiple communication paths for any given device. If an obstruction is introduced into the network, data will continue to flow because the device already has other established paths. The network will then lay in more communication paths as needed for that device.

Seamless Integration to Existing Hosts

- Transparent and seamless integration
- Same control system applications
- Gateways connect using industry standard protocols



Smart Wireless Gateway

Flexible Connectivity Options and Easy Device Configuration

Host Integration with DeltaV™ and Ovation®

- Gain real-time information on process and assets with intuitive operator interface
- Native interface between control system and gateway

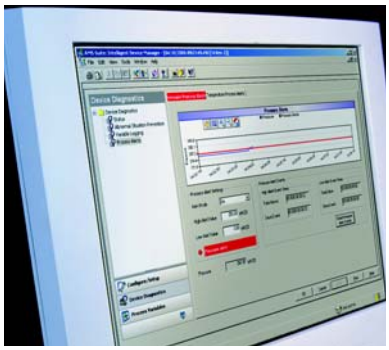
Flexible Integration

- Smart Wireless Gateway connects legacy hosts, Serial Modbus®, and Ethernet or OPC output

Device Specifications

- Update rate: User Selectable 4, 8, 16, 32 second or 1 to 60 minutes
- Network Size: Up to 100 devices
- Output: Ethernet, Modbus, OPC, Serial, HART-IP
- Approvals: FM, CSA, ATEX, IECEx

WirelessHART



Complete Asset Management with AMS Device Manager

- Manage predictive diagnostics from wired and wireless field devices to identify problems before the process is affected
- Streamline wireless device configuration through Smart Wireless Gateway

Other Interfaces

- Web interface and AMS Wireless Configurator are standard with every gateway for set-up and initial configuration of wireless devices
- Data historian connectivity for documentation and compliance information

Specifications

Functional Specifications

Input Power

19.2 - 28.8 V dc

500 mA startup

250 mA continuous

Radio Frequency Power Output from Antenna

Maximum of 10 mW (10dBm) EIRP

Environmental

Operating Temperature Range:
-40 to 149 °F (-40 to 65 °C)

Operating Humidity Range:
10-90% relative humidity

EMC Performance

Complies with EN61326-1:2006.

Antenna Options

Integrated Omnidirectional Antenna
Optional remote mount Omnidirectional Antenna

Physical Specifications

Weight

10 lb (4.54 kg)

Material of Construction

Housing
Low-copper aluminum, NEMA 4X

Paint
Polyurethane

Cover Gasket
Silicone Rubber

Antenna
PBT/PC integrated Omnidirectional Antenna

Certifications

Class I Division 2 (U.S.)

Equivalent Worldwide

Communication Specifications

Isolated RS485

2-wire communication link for Modbus RTU multidrop connections

Baud rate: 57600, 38400, 19200, or 9600

Protocol: Modbus RTU

Wiring: Single twisted shielded pair, 18 AWG. Wiring distance up to 4,000 ft. (1,524 m)

Ethernet

10/100base-TX Ethernet communication port
Protocols: Modbus TCP, OPC, HART, https (for Web Interface)
Wiring: Cat5E shielded cable. Wiring distance 328 ft. (100 m).

Fiber Optic Ethernet (optional)

100BaseFx optical Ethernet communication port
Wavelength: 1300 nm center
Multimode

SC connectors
Protocols: Modbus, TCP, OPC, HART-IP, https (for Web Interface)
Wiring: 50/125 um or 62.5/125 um fiber, 2.48 miles (4.0 k,) maximum distance.

Modbus

Supports Modbus RTU and Modbus TCP with 32-bit floating point values, integers, and scaled integers.
Modbus Registers are user-specified.

OPC

OPC server supports OPC DA, v2, v3

Self-Organizing Network Specifications

Protocol

WirelessHART, 2.4 - 2.5 GHz DSSS.

Maximum Network Size

100 devices @ 32 sec.

50 devices @ 8 sec.

25 devices @ 4 sec.

Supported Device Update Rates

4 sec. to 60 min.

Network Size/Latency

100 Devices: less than 10 sec.
50 Devices: less than 5 sec.

Data Reliability

>99%

System Security Specifications

Ethernet

Secure Sockets Layer (SSL)- enabled (default) TCP/IP communications

Smart Wireless Gateway Access

Role-based Access Control (RBAC) including Administrator, Maintenance, Operator, and Executive. Administrator has complete control of the gateway and connections to host systems and the self-organizing network.

Self-Organizing Network

AES-128 Encrypted WirelessHART, including individual session keys. Drag and Drop device provisioning, including unique join keys and white listing.

Internal Firewall

User Configurable TCP ports for communications protocols, including Enable/Disable and user specified port numbers. Inspects both incoming and outgoing packets.

Product Certifications

Approved Manufacturing Locations

Rosemount Inc. – Chanhassen, Minnesota, USA
Emerson Process Management GmbH & Co. - Karlstein, Germany
Emerson Process Management Asia Pacific Private Limited - Singapore
Beijing Rosemount Far East Instrument Co., Limited - Beijing, China

Telecommunication Compliance

All wireless devices require certification to ensure that they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires this type of product certification. Emerson is working with governmental agencies around the world to supply fully compliant products and remove the risk of violating country directives or laws governing wireless device usage.

FCC and IC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions. This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation. This device must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

Ordinary Location Certification for FM

As standard, the Gateway has been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by FM, a nationally recognized testing laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

North American Certifications

N5 FM Division 2, Non-Incendive
Certificate Number: 3028321
Nonincendive for Class I, Division 2, Groups A, B, C, and D.
Suitable for Class II, III, Division 1,
Groups E, F, and G; Indoors/outdoor locations;
Type 4X
Temperature Code: T4 (-40 °C < T_a < 60 °C)

Canadian Standards Association (CSA)

N6 CSA Division 2, Non-Incendive
Certificate Number: 1849337
Suitable for Class I, Division 2, Groups A, B, C, and D.
Dust Ignition-proof for Class II, Groups E, F, and G;
Suitable for Class III Hazardous Locations.;
Install per Rosemount drawing 01420-1011.
Temperature Code: T4 (-40 °C < T_a < 60 °C)
CSA Enclosure Type 4X

European Union Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found on the Rosemount website at www.rosemount.com. A hard copy may be obtained by contacting your local sales representative.

ATEX Directive (94/9/EC)

Emerson Process Management complies with the ATEX Directive.

*Electro Magnetic Compatibility (EMC) (2004/108/EC***)**

Emerson Process Management complies with the EMC Directive.

Radio and Telecommunications Terminal Equipment Directive (R&TTE)(1999/5/EC)

Emerson Process Management complies with the R&TTE Directive

CE

European Certification

N1 ATEX Type n
Certificate Number: Baseefa 07ATEX0056X
ATEX Marking: Ex II 3 G
Ex nA nL IIC T4 (-40 °C < T_a < 60 °C)

Special condition for safe use (X):

The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

The Apparatus is not capable of withstanding the 500V insulation test required by Clause 9.4 of EN 60079-15: 2005. This must be taken into account when installing the apparatus.

ND ATEX Dust
Certificate Number: Baseefa 07ATEX0057
ATEX Marking: Ex II 3 G
Ex tD A 22 IP66 T135 (-40 °C < T_a < 60 °C)
Maximum working Voltage = 28V

N7 IECEx Type n
Certificate Number: IECEx BAS 07.0012X
Ex nA nL IIC T4 (-40 °C =< T_a <=60 °C)
Maximum working voltage = 28V

Special condition for safe use (X):

The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

The Apparatus is not capable of withstanding the 500V insulation test required by Clause 9.4 of EN 60079-15: 2005. This must be taken into account when installing the apparatus.

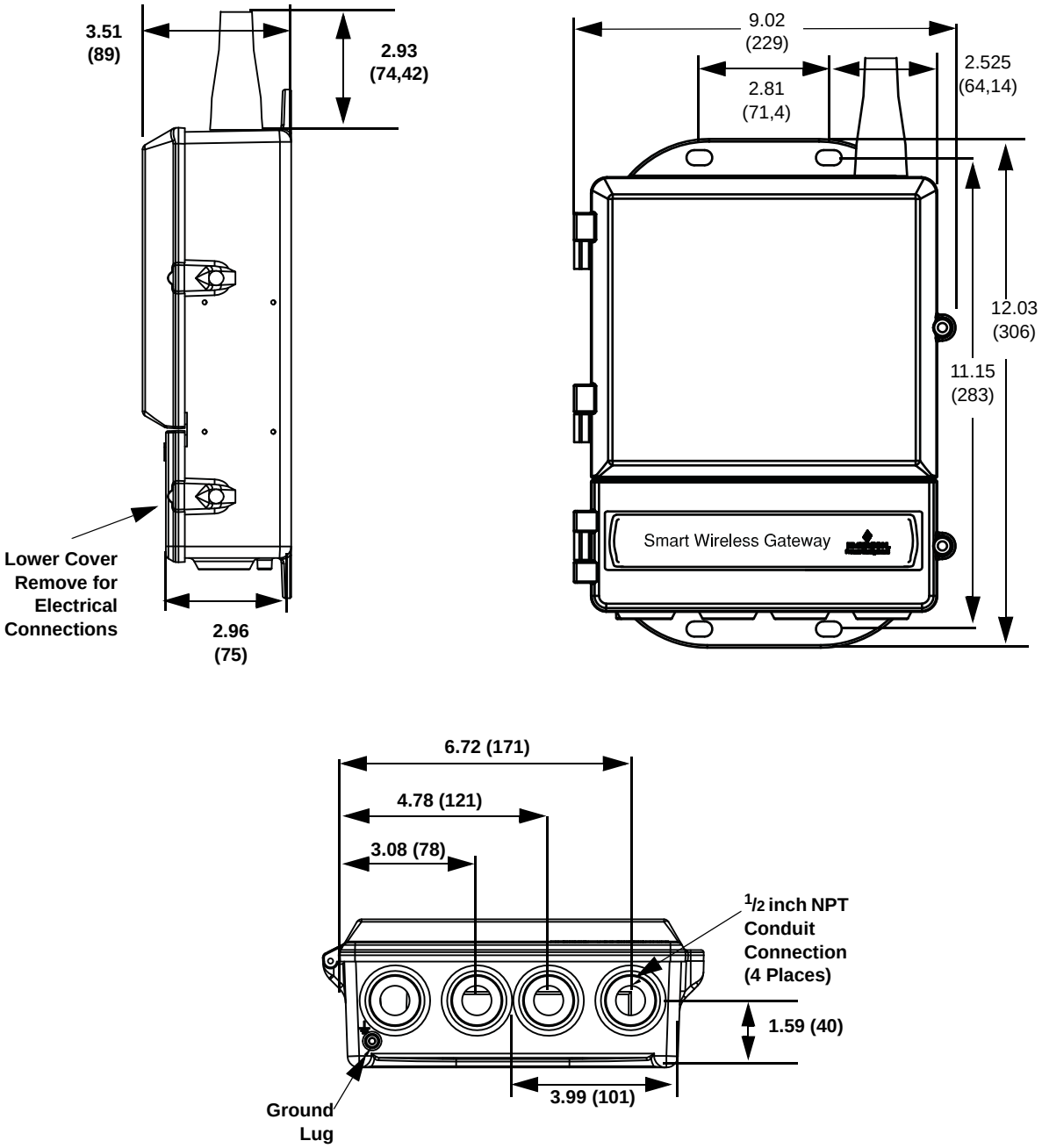
NF IECEx Dust
Certification Number: IECEx BAS 07.0013
Ex tD A22 IP66 T135 (-40 °C < T_a < 60 °C)
Maximum working voltage = 28V

Combinations of Certifications

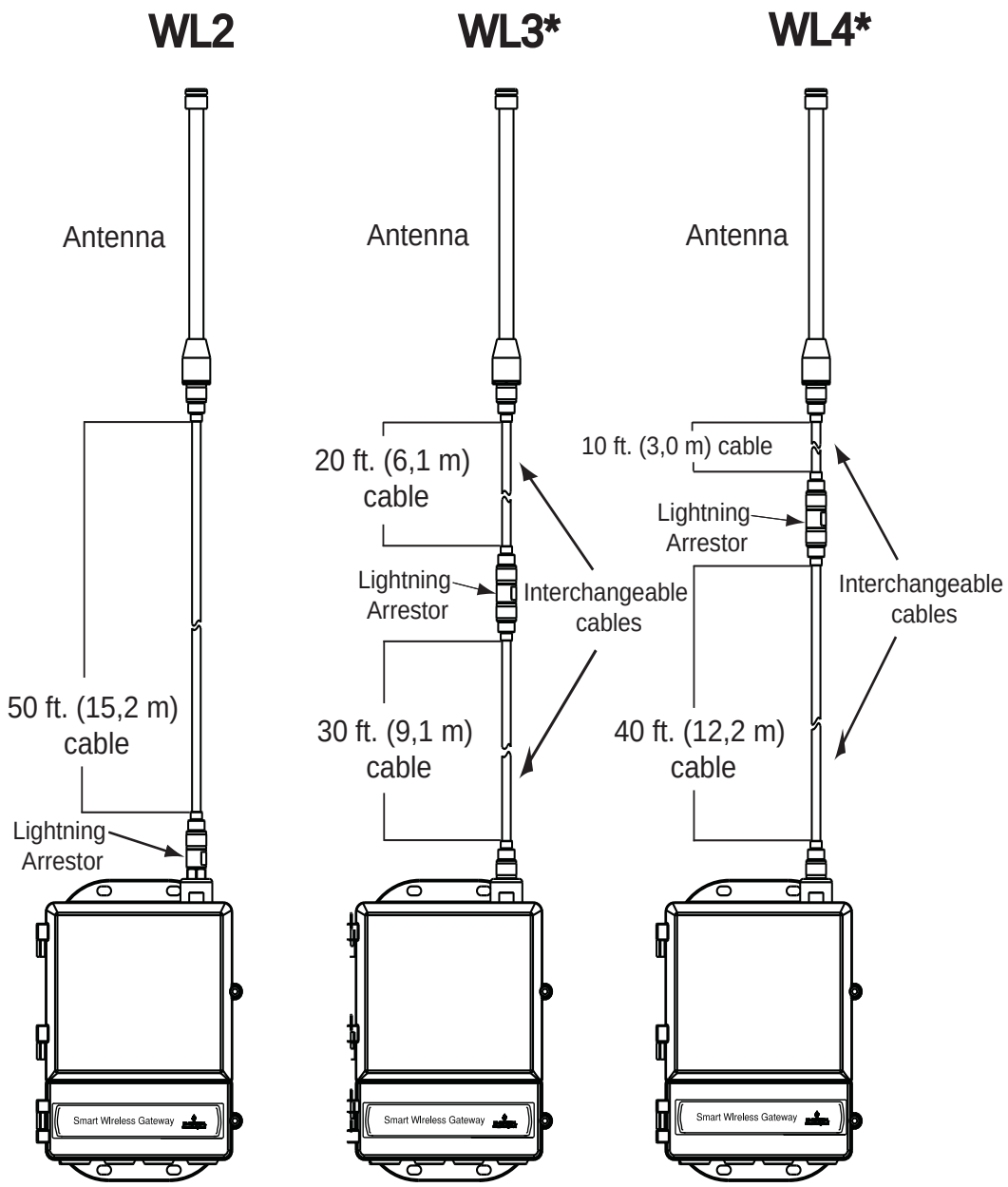
KD Combination of N5, N6, and N1.

Dimensional Drawings

FIGURE 1. Smart Wireless Gateway (Dimensions are in inches (millimeters)



Remote Omni-Antenna Kit



The Remote Omni-Antenna kit includes sealant tape for remote antenna connection, as well as mounting brackets for the antenna, Lightning Arrestor, and the Smart Wireless Gateway.

Lightning protection is included on all the options. WL3 and WL4 provide lightning protection along with the ability to have the gateway mounted indoors, the antenna mounted outdoors, and the lightning arrestor mounted at the building egress.

****Note that the coaxial cables on the remote antenna options WL3 and WL4 are interchangeable for installation convenience.***

Ordering Information

TABLE 1. 1420 Smart Wireless Gateway Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

Model	Product Description	
1420	Smart Wireless Gateway	
Power Input		
Standard		**Standard**
A	24 VDC, 500 mA	★
Ethernet Communications - Physical Connection		
Standard		**Standard**
1	Ethernet[1][2]	★
2	Dual Ethernet[3][4]	★
Expanded		
3	Fiber Optic Ethernet[5][6]	
Wireless Update Rate, Operating Frequency, and Protocol		
Standard		**Standard**
A3	User Configurable Update Rate, 2.4 GHz DSSS, WirelessHART™	★
Serial Communication		
Standard		**Standard**
N	None	★
A	Modbus RTU via RS485[7]	★
Ethernet Communication - Data Protocols		
Standard		**Standard**
2	Webserver, Modbus TCP/IP, AMS Ready	★
4	Webserver, Modbus TCP/IP, AMS Ready, OPC	★
5	DeltaV Ready[8]	★

Options (Include with selected model number)

Product Certifications		
Standard		**Standard**
N5	FM Division 2, Non-incendive	★
N6	CSA Division 2,Non-incendive	★
N1	ATEX Type n	★
ND	ATEX Dust	★
N7	IECEx Type n	★
NF	IECEx Dust	★
KD	FM & CSA Division 2, Non-incendive and ATEX Type n	★
Adapters		
Standard		**Standard**
J1	CM 20 Conduit Adapters	★
J2	PG 13.5 Conduit Adapters	★
J3	3/4 NPT Conduit Adapters	★
Antenna Options[9]		
Standard		**Standard**
WL2	Remote Omni-Antenna Kit, 50 ft. (15.2 m) cable, Lightning Arrestor	★
WL3	Remote Omni-Antenna Kit, 20 ft. (6.1 m) and 30 ft. (9.1 m) cables, Lightning Arrestor	★
WL4	Remote Omni-antenna Kit, 10 ft. (3.0 m) and 40 ft. (12.2 m) cables, Lightning Arrestor	★
Typical Model Number: 1420 A 2 A3 A 4 N5		

(1) Single active 10/100 baseT Ethernet port with RJ45 connector.

(2) Additional ports disabled.

(3) Dual active 10/100 baseT Ethernet ports with RJ45 connectors.

(4) Multiple active ports have separate IP addresses, firewall isolation, and no packet forwarding.

(5) 1300nm Multimode Optical fiber connection with separate SC connectors for Rx and Tx.

(6) Includes features of Option 1.

(7) Convertible to RS232 via adaptor, not included with Gateway.

(8) Includes Webserver, Modbus TCP/IP, AMS Ready & OPC.

(9) The WL2 - WL4 options require minor assembly.

Accessories and Spare Parts

TABLE 2. Accessories

Item Description	Part Number
AMS® Wireless SNAP-ON™, 1 Gateway License	01420-1644-0001
AMS Wireless SNAP-ON, 5 Gateway Licenses	01420-1644-0002
AMS Wireless SNAP-ON, 10 Gateway Licenses	01420-1644-0003
AMS Wireless SNAP-ON, 5-10 Upgrade Licenses	01420-1644-0004
Serial Port HART Modem and Cables only	03095-5105-0001
USB Port HART Modem and Cables only	03095-5105-0002

TABLE 3. Spare Parts

Item Description	Part Number
Spare Kit, WL2 Replacement(1), Remote Antenna, 50 ft. (15,2 m) Cable, and Lightning Arrestor	01420-1615-0302
Spare Kit, WL3 Replacement(1), Remote Antenna, 20/30 ft. (6,1/9,1 m) Cables, and Lightning Arrestor	01420-1615-0303
Spare Kit, WL3 Replacement(1), Remote Antenna, 10/40 ft. (3,0/12,2 m) Cables, and Lightning Arrestor	01420-1615-0304

(1) Can not upgrade from integral to remote antenna

Product Data Sheet
00813-0200-4420, Rev BA
April 2010

Smart Wireless Gateway

Standard Terms and Conditions of Sale can be found at www.rosemount.com\terms_of_sale

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EMERSON™
Process Management

Smart Wireless THUM™ Adapter

- *An installation-ready solution that provides rich WirelessHART™ data*
- *2- or 4-wire HART™ devices*
- *Flexibility to meet your most demanding applications*
- *Wireless output with >99% data reliability delivers rich HART data, protected by industry leading security*
- *Gain access to additional HART information, such as diagnostics or multivariable data*
- *Add wireless to almost any measurement point*
- *WirelessHART capabilities extend the full benefits of PlantWeb® to previously inaccessible locations*

WirelessHART

Contents

EMERSON™
Process Management

Wireless Overview

SELF-ORGANIZING NETWORKS

The self-forming, intelligent devices provide exceptional data reliability and network stability. The Smart Wireless THUM Adapter works with existing wired devices, allowing you to use existing practices, training and maintenance procedures, without the added wiring costs.

LAYERED SECURITY KEEPS YOUR NETWORK SAFE

Emerson Process Management's layered approach to wireless network security ensures that your network stays protected. The network devices implement Encryption, Authentication, Verification, Anti-Jamming and Key Management methods to ensure that data transmissions are received only by the Smart Wireless Gateway.

SMARTPOWER™

Emerson devices incorporate SmartPower™. SmartPower refers to the benefits that users enjoy due to the engineering efforts made to reduce power consumption. Emerson has power-optimized our instrumentation, both hardware and software, to extend life while still delivering highly reliable measurements with rich HART data and diagnostic information. The THUM Adapter is a power scavenging device that requires no external battery.

RELIABLE TRANSMITTER PERFORMANCE

The THUM Adapter ensures top transmitter performance in harsh and/or noisy EMI/RFI environments.

DIGITAL FIELD DEVICES THAT POWER PLANTWEB

The THUM Adapter powers PlantWeb by communicating important HART data and diagnostic information that ensures process health and enables economical HART architecture.

MOUNTING FLEXIBILITY

Any measurement point can be reached by connecting the THUM Adapter directly to any 2- or 4-wire HART device conduit entry, or through the use of a conduit adapter.

WIRELESS HART

The Smart Wireless THUM Adapter utilizes self-organizing network technology to deliver information rich data with >99 percent data reliability This innovation extends the full benefits of PlantWeb to previously inaccessible locations.

SMART WIRELESS SOLUTIONS

Smart Wireless Gateway

The Emerson Smart Wireless Gateway integrates the self-organizing network into the host system, providing industry leading security and data reliability.

Smart Wireless Field Devices

Emerson Process Management has a family of Smart Wireless products to integrate different measurement types into a self-organizing network that optimizes plant performance and reduces risk to personnel. The different measurement types offered include pressure, level, flow, temperature, discrete position monitoring, pH, conductivity, and vibration.

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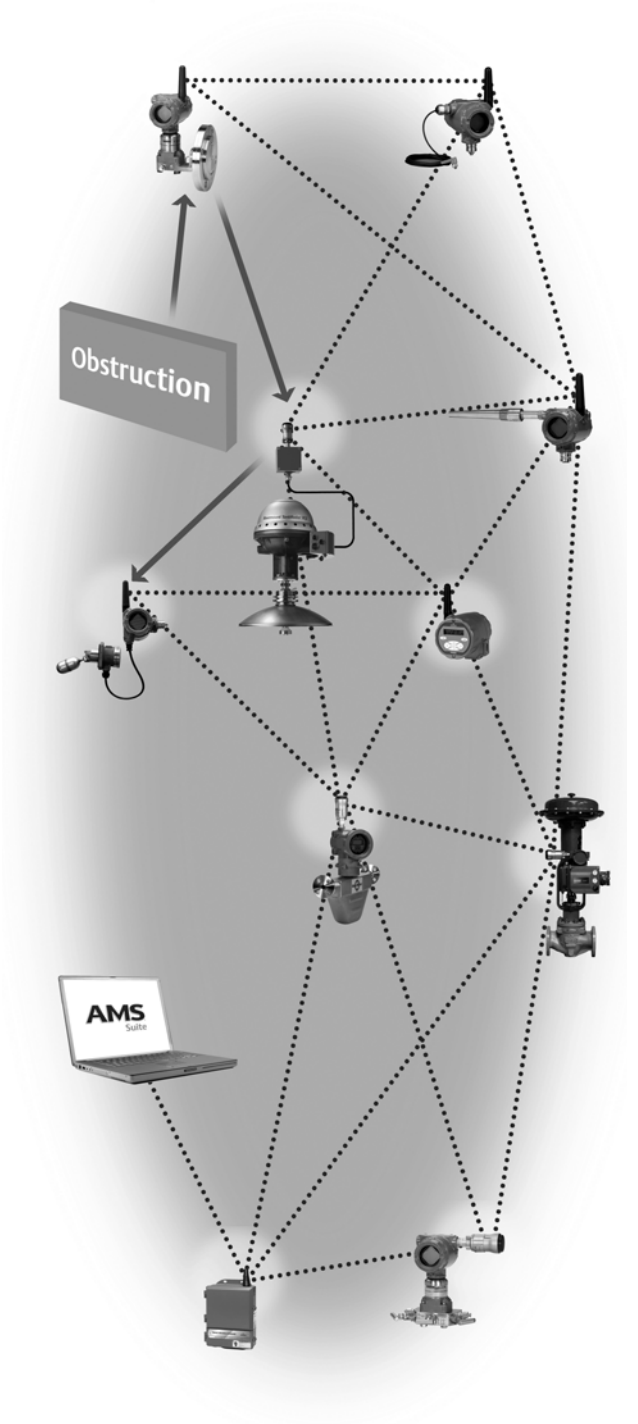
- Standard IEEE 802.15.4 radios
- 2.4 GHz ISM band sliced into 16 radio-channels
- Continually “hop” across channels to avoid interference and increase reliability
- Direct Sequence Spread Spectrum (DSSS) technology delivers high reliability in challenging radio environment

Self-Healing Network

- If an obstruction is introduced into the mesh network, devices will automatically find the best alternate communication path. This alternate path will be created and the information will continue to flow

Seamless Integration to Existing Hosts

- Transparent and seamless integration
- Same control system applications
- Gateways connect using industry protocols



Smart Wireless THUM Adapter

Device Specifications

- Approvals: FM, CSA, ATEX, IECEx
- Input: Either 2- or 4-wire HART 5.0 device
- SmartPower™: Power scavenging technology (no battery required)

Enable Enhanced Valve Capabilities

- Online, in-service valve testing through AMS ValveLink SNAP-ON Application
- Monitor alerts such as travel deviation with AMS Device Manager, supply pressure, and electronics health
- Trend actual valve position

Gain Access to Advanced Instrument Diagnostics

- Rosemount 3051S with Advanced Process Diagnostics
- Micro Motion™ Coriolis Meter Verification with optional AMS Meter Verification SNAP-ON
- Rosemount Radar Echo Curve
- Rosemount Magnetic Flow Meter Verification™ with AMS Device Manager

Efficiently Gather Data from Multivariable Devices

- Rosemount 3051S MultiVariable™ Transmitter and 3095 Mass Flow Transmitters
- Rosemount 3300 and 5300 Radar Level Transmitters
- Micro Motion Coriolis Meters
- Rosemount TankRadar Rex and TankRadar Pro
- Rosemount Magnetic Flowmeter
- Rosemount MultiVariable Vortex Flowmeter

Make any HART Device Wireless to Enable New Measurement Points

- Level
- Flow
- Valves
- Liquid and Gas Analytical
- Pressure
- Temperature

Remotely Manage Devices and Monitor Health with AMS Device Manager

- Reduce troubleshooting time
- As found, as left data
- Calibration tracking

Ordering Information

TABLE 1. Smart Wireless THUM Adapter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

Model	Product Description	
775	Smart Wireless THUM Adapter	
Output		
X	Wireless	
Housing		
Standard		**Standard**
D	Aluminum	★
Mounting Connection		
Standard		**Standard**
1	1/2 - 14 NPT	★
2	M20-Conduit Adapter	★
PlantWeb Functionality		
Standard		**Standard**
1	HART® Data	★
Certification		
Standard		**Standard**
I5	FM Intrinsically Safe, Non-incendive	★
I6	CSA Intrinsically Safe	★
I1	ATEX Intrinsic Safety	★
I7	IECEx Intrinsic Safety	★
N1	ATEX Type n	★
N7	IECEx Type n	★
NA	No Approval	★
Wireless Update Rate		
Standard		**Standard**
WA	User Configurable Update Rate	★
Operating Frequency and Protocol		
Standard		**Standard**
3	2.4 GHz DSSS, WirelessHART	★
Omnidirectional Wireless Antenna		
Standard		**Standard**
WK	Long range, Integral Antenna	★
SmartPower™ Options		
Standard		**Standard**
9	Power Scavenging	★
Typical Model Number: 775XD11I5WA3WK9		

ACCESSORIES AND SPARE PARTS

TABLE 2. Accessories

Item Description	Part Number
Remote Mount Kit - AI	00775-9000-0001
Remote Mount Kit - SST	00775-9000-0011
M20-Conduit Adapter	00775-9001-0001

Specifications

Functional Specifications

Input

Any 2- or 4-wire HART powered device

Output

WirelessHART

Humidity Limits

0–100% relative humidity

Update Rate

User selectable, 8 sec. to 60 min.

Physical Specifications

Electrical Connections

The THUM Adapter is connected into a powered 4–20 mA loop, powering itself by scavenging power. The THUM Adapter causes a voltage drop across the loop. The drop is linear from 2.25 volts at 3.5 mA to 1.2 volts at 25 mA, but does not effect the 4–20 mA signal on the loop. Under fault conditions, the maximum voltage drop is 2.5 volts.

Power Supply

Minimum load on loop 250 Ohms

To maintain normal operating functions of the sub-device, the power in the loop must have at least a 2.5 V margin at a 250 Ohm load.

Limit power supply to 0.5 Amps maximum.

Limit power supply to 55 Volts DC maximum.

HART Communicator Connections

Utilize wired device HART connections.

Materials of Construction

Enclosure

Housing - Low-copper aluminum

Paint - Polyurethane

M20-Conduit Adapter - SST
M20-Conduit Adapter O-ring - Buna-n

Antenna

Poly butadine terephthalate (PBT) / Polycarbonate (PC) integrated omnidirectional antenna

Weight

THUM Adapter only - 0.65 lbs. (0.29 kg)

With aluminum remote kit - 3.2 lbs. (1.45 kg)

With stainless steel remote kit - 5.4 lbs. (2.45 kg)

With M20-Conduit Adapter - 0.85 lbs. (0.38 kg)

Enclosure Ratings

Housing option code D and remote mount kits are NEMA 4X and IP66.

Mounting

The THUM Adapter may be attached directly to the conduit of any 2- or 4-wire HART 5.0 device or mounted remotely by using remote mount kit.

Performance Specifications

ElectroMagnetic Compatibility (EMC)

All Models:

Meets all relevant requirements of EN 61326-1 (2006) when installed with shielded wiring. The sub-device must also use shielded wiring for installation.

Vibration Effect

Output unaffected when tested per the requirements of IEC60770-1 field with general application or pipeline with low vibration level (10-60 Hz 0.15 mm displacement peak amplitude / 60-500 Hz 2g).

When the THUM Adapter is used on wired devices that are subject to vibration levels greater than 2g, it is recommended that the THUM Adapter be remotely mounted using the remote mount kit.

Temperature Limits

Operating Limit	Storage Limit
–40 to 185 °F –40 to 85 °C	–40 to 185 °F –40 to 85 °C

Output Specifications

The THUM Adapter allows WirelessHART™ communication between the HART device it is connected to and the Smart Wireless Gateway.

Product Certifications

Approved Manufacturing Locations

Rosemount Inc. – Chanhassen, Minnesota, USA

European Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found at www.rosemount.com. A hard copy may be obtained by contacting an Emerson Process Management representative.

ATEX Directive (94/9/EC)

Emerson Process Management complies with the ATEX Directive.

Electro Magnetic Compatibility (EMC) (2004/108/EC)

Emerson Process Management complies with the EMC Directive.

Radio and Telecommunications Terminal Equipment Directive (R&TTE) (1999/5/EC)

Emerson Process Management complies with the R&TTE Directive.

Telecommunication Compliance

All wireless devices require certification to ensure that they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires this type of product certification. Emerson is working with governmental agencies around the world to supply fully compliant products and remove the risk of violating country directives or laws governing wireless device usage.

FCC and IC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation.This device must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

Ordinary Location Certification for FM

As standard, the transmitter has been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by FM, a nationally recognized testing laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

Hazardous Locations Certificates

North American Certifications

Factory Mutual (FM) Approvals

I5 FM Intrinsically Safe and Non-incendive
Intrinsically Safe for Class I/II/III, Division 1, Groups A, B, C, D, E, F, and G.
Zone Marking: Class I, Zone 0, AEx ia llC
Temperature Codes T4 (-50 °C ≤ T_{amb} ≤ 70 °C)
Non-incendive for Class I, Division 2, Groups A, B, C, and D.
Intrinsically safe and non-incendive when installed according to Rosemount Drawing 00775-0010.
Enclosure Type 4X/IP66

CSA - Canadian Standards Association

I6 CSA Intrinsically Safe
Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D.
T3C (-50 °C ≤ T_{amb} ≤ 70 °C)
Intrinsically safe when installed according to Rosemount Drawing 00775-0012.
Suitable for Class I, Division 2, Groups A, B, C, and D.
Enclosure Type 4X/IP66

European Certifications

I1 ATEX Intrinsic Safety
Certificate No.: Baseefa09ATEX0125X ⟨Ex⟩ II 1G
Ex ia IIC T4 (-50 °C ≤ T_{amb} ≤ 70 °C)
IP66
CE 1180

TABLE 3. Input Parameters

Loop Power
Ui = 30V
Ii = 200 mA
Pi = 1.0 W
Ci = 0
Li = 0

Special conditions for safe use (X)
The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

The enclosure is made of aluminium alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0.

N1 ATEX Type n
Certificate No.: Baseefa09ATEX0131 ⟨Ex⟩ II 3 G
Ex nA IIC T4 (-50 °C ≤ T_{amb} ≤ 70 °C)
Ui = 45 Vdc MAX
IP66
CE 1180

IECEx Certifications

I7 IECEx Intrinsic Safety
Certificate No.: IECEx BAS 09.0050X
Ex ia IIC T4 (-50 °C ≤ T_{amb} ≤ 70°C)
IP66

TABLE 4. Input Parameters

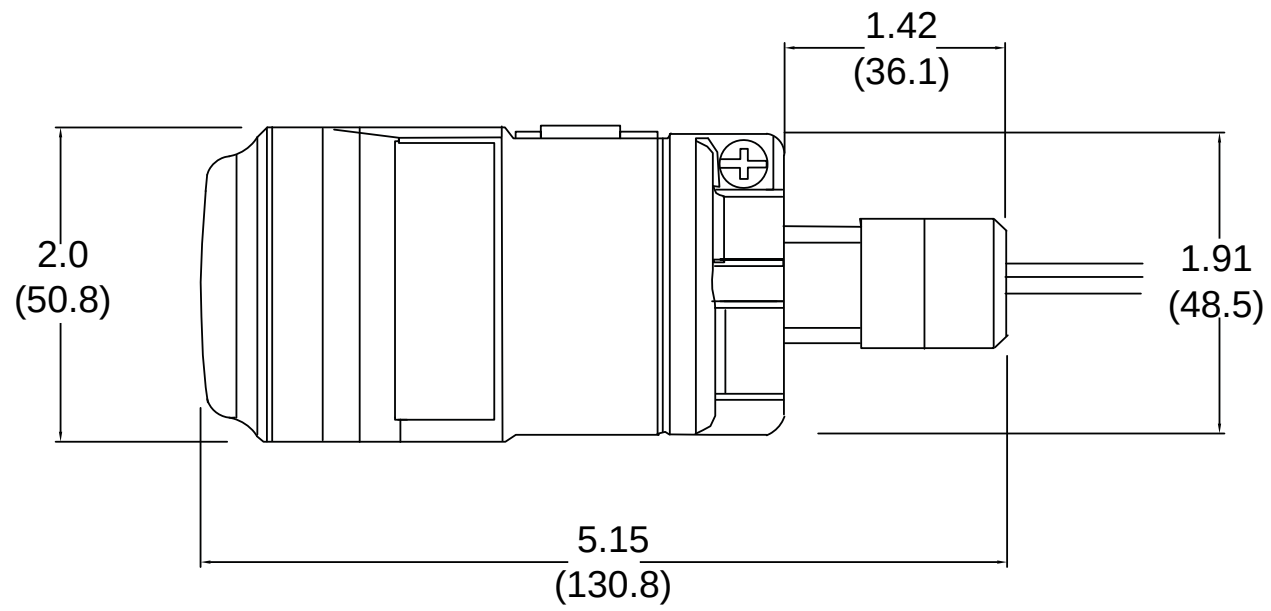
Loop Power
Ui = 30V
Ii = 200 mA
Pi = 1.0 W
Ci = 0
Li = 0

Special conditions for safe use (X)
The surface resistivity of the antenna is greater than one gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

The enclosure is made of aluminium alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0.

N7 IECEx Type n
Certificate No.: IECEx BAS 09.0058
Ex nA IIC T4 (-50 °C ≤ T_{amb} ≤ 70°C)
Ui = 45 Vdc MAX
IP66

Dimensional Drawings



Dimensions are in inches (millimeters)

Smart Wireless THUM Adapter

Product Data Sheet
00813-0100-4075, Rev BA
April 2010

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00813-0100-4075 Rev BA, 2/10

EMERSON
Process Management

Product Data Sheet
00813-0100-4702, Rev DA
April 2010

Rosemount 702 Wireless Discrete Transmitter

- *An installation-ready solution that provides dual discrete, or leak detection input options*
- *Discrete single or dual switch input with logic for limit contact and opposing contact applications*
- *Flexibility to meet your most demanding applications*
- *Self-organizing network delivers information rich data with >99% data reliability*
- *WirelessHART™ capabilities extend the full benefits of PlantWeb® to previously inaccessible locations*

WirelessHART

Contents

Success With Smart Wireless

Self-Organizing Networks

Self-forming, intelligent devices that provide exceptional data reliability and network stability. The Rosemount 702 works the same as wired devices, allowing you to leverage existing practices, training and maintenance procedures, but without the added wiring costs.

SmartPower™ Technologies

Rosemount devices incorporate SmartPower™ technologies, which refers to the benefits that users enjoy due to the engineering efforts made to reduce power consumption. Emerson has power-optimized our instrumentation, both hardware and software, to extend power module life while still delivering highly reliable measurements with rich HART data and diagnostic information.

Layered Security Keeps Your Network Safe

Emerson Process Management's layered approach to wireless network security ensures that your network stays protected. The network devices implement industry standard Encryption, Authentication, Verification, Anti-Jamming and Key Management methods to ensure that data transmissions are received only by the Wireless Gateway.

Integral LCD Display

Local indication of discrete input state and diagnostics provides real time and accurate verification of process conditions.

Reliable Transmitter Performance

The 702 ensures top transmitter performance in harsh and/or noisy EMI/RFI environments.

Digital Field Devices that Power PlantWeb

The Rosemount 702 powers PlantWeb® by communicating important discrete input state to ensure process health and enable economical single or dual switch architecture.

Mounting Flexibility

PlantWeb head mount transmitters to be direct mounted via a switch or remote mounted, allowing the flexibility needed to reach any measurement point. The PlantWeb head also offers an LCD for local display that is easily visible, even in remote installations.

SMART WIRELESS SOLUTIONS

Smart Wireless Gateway

The Emerson Smart Wireless Gateway integrates the self-organizing network into the host system, providing industry leading security and data reliability.

Rosemount 3051S Wireless Series

The scalable 3051S enables fully integrated pressure, flow and level self organizing network solutions to optimize plant performance and reduce risk.

Smart Wireless THUM™ Adapter

The THUM Adapter allows you to wirelessly transmit HART measurement and diagnostic information from any wired HART device.

Rosemount 648 Wireless Temperature Transmitter

The Rosemount 648 integrates temperature measurement into a self organizing network, providing best in class security, reliability, SmartPower, and network scalability, optimizing plant performance while minimizing maintenance.

Rosemount 848T Wireless Temperature Transmitter

The 848T Wireless temperature transmitter integrates four temperature measurements into a self-organizing network. It provides a reliable and cost effective solution for high density applications.

WirelessHART... The Industry Standard

Self-Organizing, Adaptive Mesh Routing

- No wireless expertise required, devices automatically find several alternative communication paths
- Network continuously monitors paths for degradation and repairs itself
- Adaptive behavior provides reliable, hands-off operation and simplifies network deployments, expansion and reconfiguration
- Supports both star and mesh topologies

Industry Standard Radio with Channel Hopping

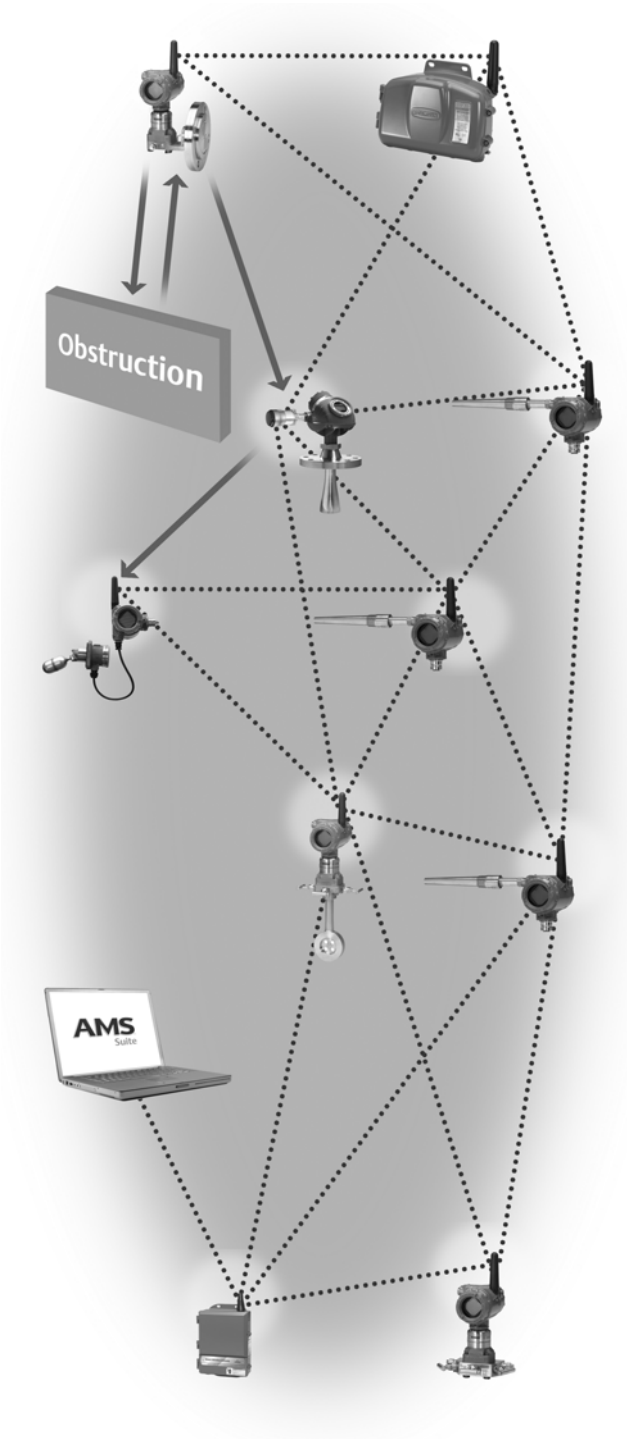
- Standard IEEE 802.15.4 radios
- 2.4 GHz ISM band sliced into 15 radio-channels
- Continually “hop” across channels to avoid interference and increase reliability
- Direct sequence spread spectrum (DSSS) with channel hopping technology delivers >99% reliability in challenging radio environment

Self-Healing Network

- The self-organizing, self-healing network manages multiple communication paths for any given device. If an obstruction is introduced into the network, data will continue to flow because the device already has other established paths. The network will then lay in more communication paths as needed for that device.

Seamless Integration to Existing Hosts

- Transparent and seamless integration
- Same control system applications
- Gateways connect using industry protocols



Ordering Information

Table 1. 702 Wireless Discrete Transmitter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery. The Expanded offering is subject to additional delivery lead time.

Product Description			
Standard			**Standard**
702	DiscreteTransmitter		★
Transmitter Type			
Standard			**Standard**
D	Wireless Field Mount		★
Output			
Standard			**Standard**
X	Wireless		★
Measurement			
Standard			**Standard**
22	Dual Discrete Inputs (Dry Contact)		★
61[1]	Liquid Hydrocarbon Detection (For use with TraceTek Fast Fuel Sensor or TraceTek sensing cable)		★
Housing			
Standard			**Standard**
D	Dual Compartment Housing - Aluminum		★
E	Dual Compartment Housing - SST		★
Conduit Threads			
Standard			**Standard**
1	1/2 - 14 NPT		★
Certifications		**Measurement Option Codes**	
Standard			**Standard**
I5	FM Intrinsically Safe, Non-Incendive, and Dust Ignition-Proof	22, 61	★
I6	CSA Intrinsically Safe	22, 61	★
I1	ATEX Intrinsic Safety	22, 61	★
I7	IECEx Intrinsic Safety	22, 61	★
I4	TIIS Intrinsic Safety	22	★
I3	China Intrinsic Safety	22	★
NA	No Approval	22, 61	★

Wireless Options

Wireless Update Rate		
Standard		**Standard**
WA	User Configurable Update Rate	★
Operating Frequency and Protocol		
Standard		**Standard**
3	2.4 GHz DSSS, WirelessHART	★
Omnidirectional Wireless Antenna		
Standard		**Standard**
WK	Long Range, Integral Antenna	★
WM	Extended Range, Integral Antenna	★
SmartPower™		
Standard		**Standard**
1[2]	Power Module Adapter, Intrinsically Safe (Power Module separate)	★

Table 1. 702 Wireless Discrete Transmitter Ordering Information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Other Options (Include with selected model number)

Meter		
Standard		**Standard**
M5[(1)]	LCD Meter	★
Mounting Bracket		
Standard		**Standard**
B4	Universal L mounting bracket for 2-inch pipe mounting - SST bracket and bolts	★
Configuration		
Standard		**Standard**
C1	Factory Configure Date, Descriptor, Message Fields, and Wireless Parameters	★
Cable Gland		
Standard		**Standard**
G2	Cable gland (7.5 mm - 11.9 mm)	★
G4[(3)]	Thin Wire Cable Gland (3 mm - 8 mm)	★
Typical Model Number: 702 D X 22 D 1 NA WA3 WK1 M5		

(1) LCD Display not available for option code 61.

(2) Long-life Power Module must be shipped separately, order Part #00753-9220-0001.

(3) Thin wire cable gland is preferred for measurement option 61.

Specifications

Functional Specifications

Input

Single or dual SPST dry contacts, single SPDT dry contacts or leak detection. To maintain I.S. ratings, contacts must be limited to simple switches or leak detection only.

Output

WirelessHART 2.4 GHz DSSS.

Radio Frequency Power Output from Antenna

Long Range (WK option) antenna: Maximum of 10 mW (10 dBm) EIRP

Extended Range (WM option) antenna: Maximum of 18 mW (12.5 dBm) EIRP

Local Display(1)

The optional integral LCD can display discrete state and diagnostic information. Display updates at transmit rate up to once per minute.

(1) The option for a local display is not available with option 61, Liquid Hydrocarbon Leak Detection.

Humidity Limits

0–100% relative humidity

Update Rate

WirelessHART, user selectable 8 sec. to 60 min.

Physical Specifications

Electrical Connections

Wireless Power Module

Replaceable, Intrinsically Safe Lithium-Thionyl Chloride power module with PBT polymer enclosure. Ten year life at one minute update rate.(1)

(1) Reference conditions are 70° F (21° C), and routing data for three additional network devices.

NOTE: Continuous exposure to ambient temperature limits (-40 °F or 185 °F) (-40 °C or 85 °C) may reduce specified power module life by less than 20 percent.

Switch Terminals

Screw terminals permanently fixed to terminal block

HART Communicator Connections

Communication Terminals

Clips permanently fixed to terminal block

Materials of Construction

Enclosure

Housing - Low-copper aluminum, or stainless steel

Paint - Polyurethane

Cover O-ring - Buna-N

Terminal Block and Power Module Pack

PBT

Antenna

PBT/PC integrated omnidirectional antenna

Weight

Low - Copper Aluminum:
702 without LCD - 4.6 lbs. (2.0 kg)
702 with M5 LCD - 4.7 lbs (2.1 kg)

Stainless Steel:
702 without LCD - 8.0 lbs. (3.6 kg)
702 with M5 LCD - 8.1 lbs (3.7 kg

Enclosure Ratings (702)

NEMA 4X, and IP66/67.

Mounting

Transmitters may be attached directly to switch, brackets also permit remote mounting. See “Dimensional Drawings” on page 12.

Performance Specifications

ElectroMagnetic Compatibility (EMC)

All Models:

Meets all relevant requirements of EN 61326-2-3:2006

Vibration Effect

Output unaffected when tested per the requirements of IEC60770-1 field or pipeline with high vibration level (10-60 Hz 0.21mm displacement peak amplitude / 60-2000 Hz 3g).

Output unaffected when tested per the requirements of IEC60770-1 field with general application or pipeline with low vibration level (10-60 Hz 0.15mm displacement peak amplitude / 60-500 Hz 2g).

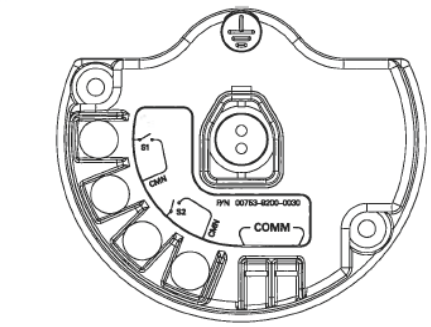
Temperature Limits

Description	Operating Limit	Storage Limit
Without LCD Display	–40 to 185 °F –40 to 85 °C	–40 to 185 °F –40 to 85 °C
With LCD Display	–4 to 175 °F –20 to 80 °C	–40 to 185 °F –40 to 85 °C

Dry Contact Inputs, Measurement option code 22

Terminal Block Connections

Figure 1. 702 Sensor Connections



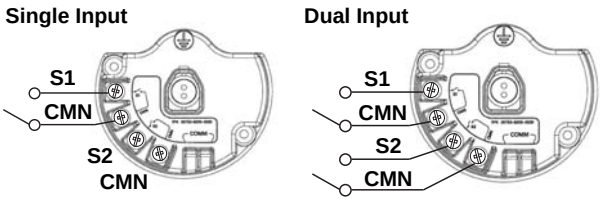
Wireless Output Specifications

Dry Contact Inputs, Measurement option code 22

Dual Input, No Logic

The 702 Discrete Transmitter will accept the input from one or two single pole single throw switches on inputs S1 and S2. The wireless output of the transmitter will be both a primary variable (PV) and a secondary variable (SV). The PV is determined by the S1 input. The SV is determined by the S2 input. A closed switch drives a TRUE output. An Open switch drives a FALSE output.

Figure 2. Single, Dual Input



Single or Dual Input, No Logic			
Switch Input	**Wireless Output**	**Switch Input**	**Wireless Output**
S1	**PV**	**S2**	**SV**
Closed	TRUE (1.0)	Closed	TRUE (1.0)
Open	FALSE (0.0)	Open	FALSE (0.0)

If inverted output is selected, any outputs will be inverted, as shown below.

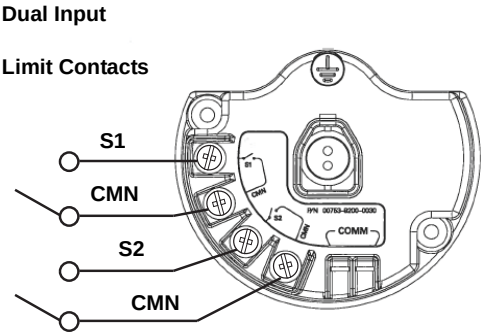
Single or Dual Input, No Logic, Inverted Output			
Switch Input	**Wireless Output**	**Switch Input**	**Wireless Output**
S1	**PV**	**S2**	**SV**
Closed	FALSE (0.0)	Closed	FALSE (0.0)
Open	TRUE (1.0)	Open	TRUE (1.0)

Dry Contact Inputs (Continued)...

Dual Input, Limit Contact Logic

When configured for Limit Contact Logic, the 702 Discrete Transmitter will accept the input from two single pole single throw switches on inputs S1 and S2, and will use limit contact logic for the determination of the wireless outputs.

Figure 3. Dual Input, Limit Contacts



Dual Input, Limit Contact Logic			
Switch Input	**Wireless Output**	**Switch Input**	**Wireless Output**
S1	**PV**	**S2**	**SV**
Open	Open	TRAVEL (0.5)	TRAVEL (0.5)
Open	Closed	FALSE (0.0)	FALSE (0.0)
Closed	Open	TRUE (1.0)	TRUE (1.0)
Closed	Closed	FAULT(NaN)	FAULT(NaN)

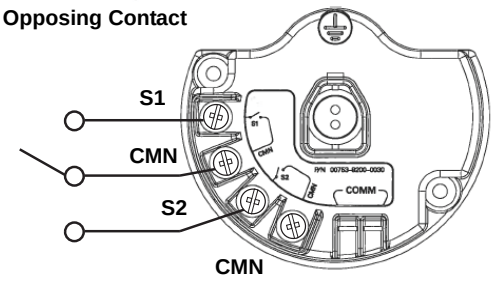
If inverted output is selected, any outputs will be inverted, as shown below.

Dual Input, Limit Contact Logic			
Switch Inputs		**Wireless Outputs**	
S1	**PV**	**S2**	**SV**
Open	Open	FAULT(NaN)	FAULT(NaN)
Open	Closed	TRUE (1.0)	TRUE (1.0)
Closed	Open	FALSE (0.0)	FALSE (0.0)
Closed	Closed	TRAVEL (0.5)	TRAVEL (0.5)

Dual Input, Opposing Contact Logic

When configured for Opposing Contact Logic, the 702 Discrete Transmitter will accept the input from a double pole single throw switches on inputs S1 and S2, and will use opposing contact logic for the determination of the wireless outputs.

Figure 4. Dual Input, Opposing Contact



Dual Input, Opposing Contact Logic			
Switch Inputs		**Wireless Outputs**	
S1	**S2**	**PV**	**SV**
Open	Open	FAULT(NaN)	FAULT(NaN)
Open	Closed	FALSE (0.0)	FALSE (0.0)
Closed	Open	TRUE (1.0)	TRUE (1.0)
Closed	Closed	FAULT(NaN)	FAULT(NaN)

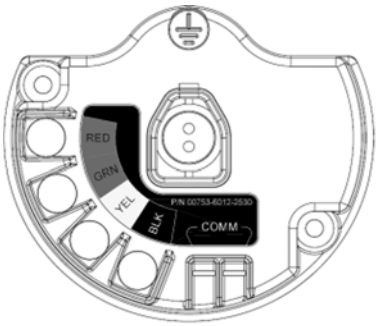
If inverted output is selected, any outputs will be inverted, as shown below.

Dual Input, Opposing Contact Logic, Inverted Output			
Switch Inputs		**Wireless Outputs**	
S1	**S2**	**PV**	**SV**
Open	Open	FAULT(NaN)	FAULT(NaN)
Open	Closed	TRUE (1.0)	TRUE (1.0)
Closed	Open	FALSE (0.0)	FALSE (0.0)
Closed	Closed	FAULT(NaN)	FAULT(NaN)

Liquid Hydrocarbon Detection, Measurement option code 61

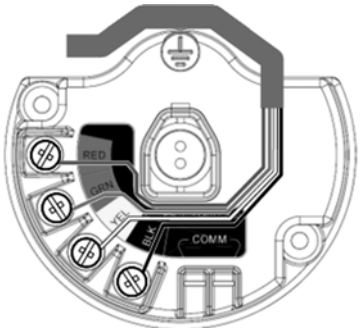
Terminal Block Connections

Figure 5. Fuel Sensor Terminal Diagram



The Liquid Hydrocarbon Detection configuration is intended for use with the Tyco® TraceTek® Fast Fuel Sensor, or TraceTek sensing cable.

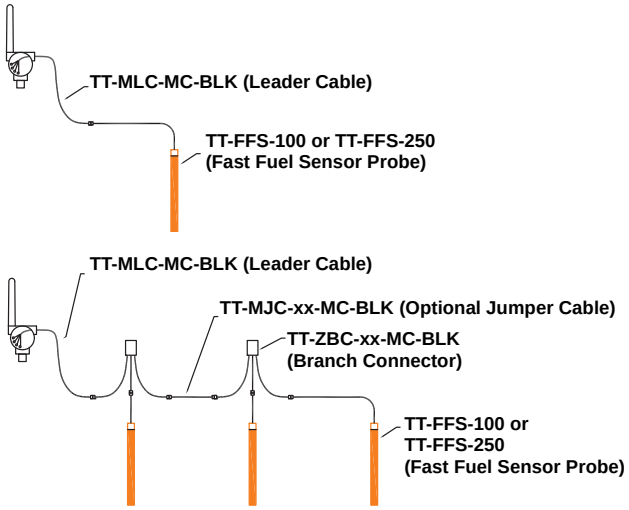
Figure 6. Fuel Sensor Connection Diagram



The connections to the Fast Fuel Sensor TraceTek sensing cable are made by matching the appropriately colored wires to the matching colored termination lugs.

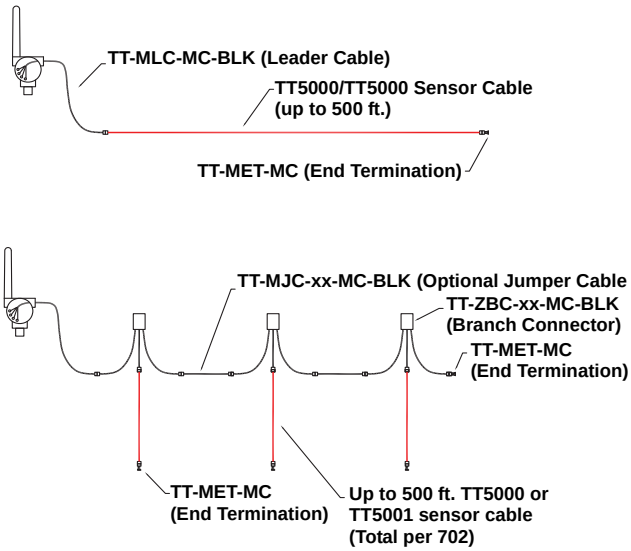
- The Emerson Smart Wireless 702 Discrete Transmitter can support up to 3 Fast Fuel sensors. These Fast Fuel sensors are connected using TraceTek Modular Leader Cable (TT-MLC-MC-BLK), optional modular jumper cables (TT-MJC-xx-MC-BLK) and branching connectors (TT-ZBC-MC-BLK) as suggested in Figure 7.

Figure 7. Fuel Sensor wiring



- The Emerson Smart Wireless 702 Discrete Transmitter can support up to 500 feet of TraceTek hydrocarbon or solvent sensor cable (TT5000 or TT5001 series). The total amount of sensor cable connected to a single 702 transmitter is not to exceed 500 ft. However leader cable, jumper cables (if used) and branch connectors are not included in the 500 foot limit. See Figure 8 for typical configurations.

Figure 8. Fuel Sensor sensor cable wiring



Product Certifications

ROSEMOUNT 702

Approved Manufacturing Locations

Rosemount Inc. – Chanhassen, Minnesota, USA
Emerson Process Management GmbH & Co. - Karlstein, Germany
Emerson Process Management Asia Pacific Private Limited - Singapore

European Directive Information

The EC declaration of conformity for all applicable European directives for this product can be found at www.rosemount.com. A hard copy may be obtained by contacting an Emerson Process Management representative.

Telecommunication Compliance

All wireless devices require certification to ensure that they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires this type of product certification. Emerson is working with governmental agencies around the world to supply fully compliant products and remove the risk of violating country directives or laws governing wireless device usage.

FCC and IC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation.

This device must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

Ordinary Location Certification for FM Approvals

As standard, the transmitter has been examined and tested to determine that the design meets basic electrical, mechanical, and fire protection requirements by FM Approvals, a nationally recognized testing laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

Hazardous Locations Certificates

North American Certifications

FM Approvals

I5 FM Intrinsically Safe, Non-Incendive and Dust Ignition-Proof
Intrinsically Safe for Class I/II/III, Division 1, Groups A, B, C, D, E, F, and G.
Zone Marking: Class I, Zone 0, AEx ia IIC
Temperature Codes T4 (-50 °C <= T_{amb} <= 70 °C), T5 (-50 °C <= T_{amb} <= 40 °C)
Non-incendive for Class I, Division 2, Groups A, B, C, and D.
Dust Ignition-proof for Class II/III, Division 1, Groups E, F, and G.
Intrinsically Safe and non-incendive when installed in accordance with Rosemount drawing 00702-1000.
For use with Rosemount SmartPower® Options P/N 753-9220-0001 only.
Enclosure Type 4X / IP66 / IP67

CSA International

I6 CSA Intrinsically Safe
Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D.
Temp Code T3C
Enclosure Type 4X / IP66 / IP67
For use with Rosemount SmartPower Options P/N 753-9220-0001 only
Intrinsically Safe when installed per Rosemount drawing 00702-1020

European Certifications

I1 ATEX Intrinsic Safety
Certificate No.: BASEEFA07ATEX0239X ⟨Ex⟩ II 1G
Ex ia IIC T4 (-60 °C <= T_{amb} <= 70 °C), Ex ia IIC T5 (-60 °C <= T_{amb} <= 40 °C)
CE 1180
IP66 / IP67
For use with Rosemount SmartPower ™ options P/N 753-9220-XXXX only
Special conditions for safe use (X)
The surface resistivity of the antenna is greater than 1 gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

TABLE 2. Sensor Parameters

Dry Contact Inputs Option Code 22	Liquid Hydrocarbon Detection Option Code 61
U_o = 6.51 V	U_o = 7.8 V
I_o = 26 mA	I_o = 92 mA
P_o = 42.6 mW	P_o = 180 mW
C_o = 10.9 uF	C_o = 9.2 uF
L_o = 25 mH	L_o = 5 mH

IECEx System Certifications

I7 IECEx Intrinsic Safety
Certificate No.: IECExBAS07.0082X
Ex ia IIC T4 (-60 °C <= T_{amb} <= 70 °C), Ex ia IIC T5 (-60 °C <= T_{amb} <= 40 °C)
IP66 / IP67
For use with Rosemount SmartPower options P/N 753-9220-XXXX only
Special conditions for safe use (X)
The surface resistivity of the antenna is greater than 1 gigaohm. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

TABLE 3. Sensor Parameters

Dry Contact Inputs Option Code 22	Liquid Hydrocarbon Detection Option Code 61
U_o = 6.51 V	U_o = 7.8 V
I_o = 26 mA	I_o = 92 mA
P_o = 42.6 mW	P_o = 180 mW
C_o = 10.9 uF	C_o = 9.2. uF
L_o = 25 mH	L_o = 5 mH

Japanese Certifications

I4 TIIS Intrinsic Safety
Ex ia IIC T4

Certificate Option Code 22	Description
TC18457	Frequency/Protocol Option WA1
TC18640	Frequency/Protocol Option WA3

China (NEPSI) Certifications

I3 China Intrinsic Safety
Certificate No. (Manufactured in Chanhassen or Singapore): GYJ081015
Ex ia IIC T4/T5

Special Condition for Safe Use

1. The temperature class depends on ambient temperature range as follows:

Temperature Class	Ambient Temperature Range
T4	(-60 ~ +70) °C
T5	(-60 ~ +40) °C

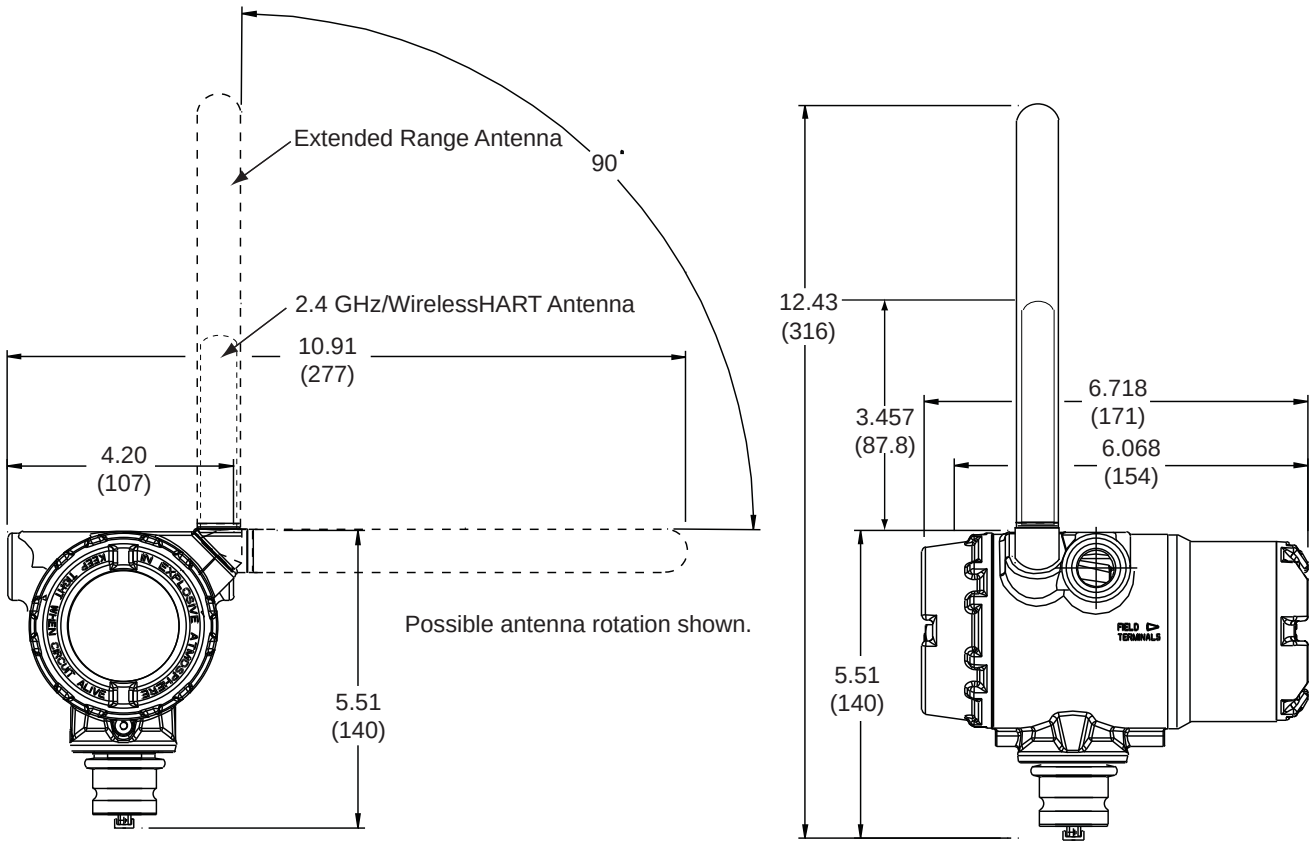
2. Safety Parameters:

Dry Contact Inputs Option Code 22	
U_o = 6.6 V	
I_o = 26.2 mA	
P_o = 42.6 mW	
C_o = 10.9 uF	
L_o = 25 uH	

3. The cable entry of transmitter should be protected to ensure the degree of protection of the enclosure IP 20 (GB4208-1993) at least.
4. The cables between transmitter and associated apparatus should be shielded cables (the cables must have insulated shield). The cable core section area should be more than 0.5 mm^2. The shield has to be grounded reliably. The wiring has to not be affected by electromagnetic disturbance.
5. COMM interface is forbidden to use in hazardous location.
6. Associated apparatus should be installed in a safe location, and during installation, operation, and maintenance, the regulations of the instruction manual have to be strictly observed.
7. End users are not permitted to change any components insides.
8. During installation, use and maintenance transmitter, observe the following standards.
   a. GB3836.13-1997 “Electrical apparatus for explosive gas atmospheres Part 13: Repair and overhaul for apparatus used in explosive gas atmospheres”
   b. GB3836.15-2000 “Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous area (other than mines)”
   c. GB3836.16-2006 “Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)”
   d. GB50257-1996 “Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering”
9. Note all installation practices must be followed and if connected to a device that doesn't meet these same approval requirements, the overall system installed approval may be affected.

Dimensional Drawings

702 Direct Mount



Dimensions are in inches (millimeters)

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